



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,094	03/10/2004	Keijiro Take	249299US-6 DIV	2328
22850	7590	12/13/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			PHAN, TRI H	
			ART UNIT	PAPER NUMBER
			2661	

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/796,094

Applicant(s)

TAKE, KEIJIRO

Examiner

Tri H. Phan

Art Unit

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-6 is/are pending in the application.
- 4a) Of the above claim(s) 1 and 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/156,703.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1-3.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment/Arguments

1. This Office Action is in response to the Preliminary Amendment filed on August 31st, 2004. Claims 1-2 are now canceled and new claims 3-6 are added. Claims 3-6 are now pending in the application.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/156,703 filed on 09/18/1998.

Claim Objections

3. Claims 3-6 are objected to because of the following informalities:

In regard to claim 3, line 11, the phrase "... at one of ..." should be correct to -- at the one of -- for clarity.

Regarding claim 4, line 11, the phrase "... at one of ..." should be correct to -- at the one of -- for clarity.

In regard to claim 5, line 9, the phrase "... by one of ..." should be correct to -- by the one of -- for clarity.

Regarding claim 6, the phrase "... by one of ..." (line 9) should be correct to -- by the one of -- and the phrase "one of the plurality of ..." (line 11) should be correct to -- the one of the plurality of -- for clarity.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 5 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regard to claim 5, the recitation "one of the base station controlling apparatus" in line 7 is vague and unclear, because it is not consistent and leaves a doubt with the single predefined recitation "a base station controlling apparatus" in line 4.

Similar problem exists in claim 6, the recitation "one of the base station controlling apparatus" in line 7 is vague and unclear, because it is not consistent and leaves a doubt with the single predefined recitation "a base station controlling apparatus" in line 4.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2661

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nakamura et al.** (U.S.5,740,168) in view of **Adachi** (U.S.6,084,884).

- In regard to claims 3 and 5, **Nakamura** discloses in Figs. 3A-B, 2A-B, 4, 20A-B, 25 and in the respective portions of the specification about the method and apparatus for switching radio link in the mobile communication employing code division multiple access 'CDMA' for radio access between base station and mobile station (For example see Abstract; col. 5, lines 10-30); wherein each base station's transceiver unit under the control of the base station control unit ("*base station controlling apparatus*"; For example see Fig. 2A; wherein, it is obvious that the base station control unit of the 'root' base station controls its 'leaves' base station in the hierarchical tree structure) includes the switching timing set up unit, the switching timing information changing unit ("*timing information sending unit*"), the spread code switching unit ("*code switch informing unit*") and the control unit ("*switching unit*") as disclosed in Fig. 2B; for selecting and transmitting the timing information and new spreading code ("*second code*"; wherein, it is obvious that the being used spreading code is the "*first code*") to the mobile station for switching the spreading codes in synch ("*switching in synchronization*") between the base station and the mobile station, when detecting the link quality degradation, (For example see Figs. 4, 20A-B, 25; col. 6, line 18 through col. 7, line 38); and wherein the transceiver unit of the mobile station includes the switching timing set up unit, the switching timing information change

Art Unit: 2661

detection unit, the spread code switching unit and the control unit ("*switching unit*") as disclosed in Fig. 3B, for receiving the new spreading code designation signal ("*receiving code information*"), which contains the selected unused spreading code ("*second code*"; For example see Figs. 4, 20A-B, 25; col. 6, lines 35-39; wherein, it is obvious that the 'being used' spreading code is the "*first code*") sent by the base station when detecting the quality degradation in the radio link (For example see col. 6, lines 18-34); for receiving the switching timing information sent by the base station ("*receiving timing information*"; For example see Figs. 4, 20A-B, 25; col. 6, line 60 through col. 7, line 3); and for switching to the newly selected spreading code at appropriate timing (For example see Figs. 4, 20A-B, 25; col. 7, lines 4-15) while maintaining in synch between the base station and the mobile station ("*switching performed in synchronization*"; For example see col. 7, lines 28-38; It is obvious that the cited base station is one of the plurality of base stations in the mobile communications system as disclosed in col. 1, lines 12-22). **Nakamura** further discloses about the use of unique words in each frame for setting up the switching timing in prescribed frames, e.g. M and N frames (For example see Figs. 4, 6-7; col. 8, line 64 through col. 9, line 12), or using frame number (For example see Fig. 16; col. 14, lines 7-17), or using flag in each frame for period of time in boundary of frames (For example see Figs. 8-15; col. 11, lines 50-59); wherein, it is obvious the number or sequence of frames is in integer ("*timing information including an integer representing the frame*"). **Nakamura** does disclose about the method and system for using in the CDMA scheme, but fails to explicitly disclose about the "*multi-rate transmission*" of the CDMA. However, such implementation is known in the art.

For example, **Adachi** discloses in Figs. 1, 3, 7, 9-11 and in the respective portions of the specification about the system and method for achieving generation and selection of spreading sequences implementing in the multi-rate CDMA communications system (“*multi-rate transmission*”; For example see Figs. 1, 3, 7; col. 3, line 39 through col. 4, line 27; col. 5, lines 26-67) while assuring code orthogonal without interference between the users, which results in the degradation in the transmission quality.

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to combine the invention as taught by **Adachi**, by implement the method for using and selecting spreading sequences in the multi-rate CDMA communications system into the **Nakamura**’s CDMA scheme, with the motivation being to improve the ability to carry out the transmission with different rates for different types, without interference between users as disclosed in **Adachi**: col. 1, lines 45-48.

- Regarding claims 4 and 6, **Nakamura** discloses in Figs. 3A-B, 2A-B, 4, 20A-B, 25 and in the respective portions of the specification about the method and apparatus for switching radio link in the mobile communication employing code division multiple access ‘CDMA’ for radio access between base station and mobile station (For example see Abstract; col. 5, lines 10-30); wherein each base station’s transceiver unit under the control of the base station control unit (“*base station controlling apparatus*”; For example see Fig. 2A; wherein, it is obvious that the base station control unit of the ‘root’ base station controls its ‘leaves’ base station in the hierarchical tree structure) includes the switching timing set up unit, the switching timing information changing unit (“*timing information sending unit*”), the spread code switching unit

Art Unit: 2661

(“*code switch informing unit*”) and the control unit (“*switching unit*”) as disclosed in Fig. 2B; for selecting and transmitting the timing information and new spreading code (“*second code*”; wherein, it is obvious that the being used spreading code is the “*first code*”) to the mobile station for switching the spreading codes in synch (“*switching in synchronization*”) between the base station and the mobile station, when detecting the link quality degradation, (For example see Figs. 4, 20A-B, 25; col. 6, line 18 through col. 7, line 38); and wherein the transceiver unit of the mobile station includes the switching timing set up unit, the switching timing information change detection unit, the spread code switching unit and the control unit (“*switching unit*”) as disclosed in Fig. 3B, for receiving the new spreading code designation signal (“*receiving code information*”), which contains the selected unused spreading code (“*second code*”; For example see Figs. 4, 20A-B, 25; col. 6, lines 35-39; wherein, it is obvious that the ‘being used’ spreading code is the “*first code*”) sent by the base station when detecting the quality degradation in the radio link (For example see col. 6, lines 18-34); for receiving the switching timing information sent by the base station (“*receiving timing information*”; For example see Figs. 4, 20A-B, 25; col. 6, line 60 through col. 7, line 3); and for switching to the newly selected spreading code at appropriate timing (For example see Figs. 4, 20A-B, 25; col. 7, lines 4-15) while maintaining in synch between the base station and the mobile station (“*switching performed in synchronization*”; For example see col. 7, lines 28-38; It is obvious that the cited base station is one of the plurality of base stations in the mobile communications system as disclosed in col. 1, lines 12-22). **Nakamura** further discloses about the use of unique words in each frame for setting up the switching timing in prescribed frames, e.g. M and N frames (For example see Figs. 4, 6-7; col. 8, line 64 through col. 9, line 12) and maintaining the frame synchronization (“*timing*

Art Unit: 2661

information is used to synchronize the switch"; For example see col. 8, lines 19-22), or using frame number (For example see Fig. 16; col. 14, lines 7-17), or using flag in each frame for period of time in boundary of frames (For example see Figs. 8-15; col. 11, lines 50-59).

Nakamura does disclose about the method and system for using in the CDMA scheme, but fails to explicitly disclose about the "*multi-rate transmission*" of the CDMA. However, such implementation is known in the art.

For example, **Adachi** discloses in Figs. 1, 3, 7, 9-11 and in the respective portions of the specification about the system and method for achieving generation and selection of spreading sequences implementing in the multi-rate CDMA communications system ("*multi-rate transmission*"; For example see Figs. 1, 3, 7; col. 3, line 39 through col. 4, line 27; col. 5, lines 26-67) while assuring code orthogonal without interference resulting in the degradation in the transmission quality between the users.

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to combine the invention as taught by **Adachi**, by implement the method for using and selecting spreading sequences in the multi-rate CDMA communications system into the **Nakamura**'s CDMA scheme, with the motivation being to improve the ability to carry out the different rate transmissions for different types, without interference between users as disclosed in **Adachi**: col. 1, lines 45-48.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2661

Harris et al. (U.S.6,400,755), **Blanchard et al.** (U.S.5,862,132), **Light et al.** (U.S.6,061,337), **Uchida et al.** (U.S.6,532,168), **Katsura et al.** (JP 9-261162), **Tanno et al.** (U.S.6,078,572), **Adachi et al.** (Wideband Multi-rate DS-CDMA Mobile Radio Access, December 1997, Asia Pacific Microwave Conference, APMC '97, Vol. 1, 2-5, pages 149-152) and **Okawa et al.** (Orthogonal Multi-Spreading Factor Forward Link for Coherent DS-CDMA Mobile Radio, October 1997, Universal Personal Communication Record, '97 Conference, 0-7803-3777-8/97 IEEE, Vol. 2, pages 618-622) are all cited to show devices and methods for improving transmission in the CDMA communication architectures, which are considered pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tri H. Phan, whose telephone number is (571) 272-3074. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor.

Art Unit: 2661

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office, whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tri H. Phan
December 6, 2004



BRIAN NGUYEN
PRIMARY EXAMINER